



10 CFR 50.73  
L-2020-132  
August 28, 2020

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

RE: Turkey Point Unit 4  
Docket No. 50-251  
Reportable Event: 2020-001-00  
Date of Event: July 5, 2020  
Title: Automatic Reactor Trip caused by Main Generator Lockout due to Exciter Fault

The attached Licensee Event Report 05000251/2020-001-00 is submitted pursuant to 10 CFR 50.73 (a)(2)(iv)(A), due to automatic actuation of the Unit 4 Reactor Protection System and Auxiliary Feedwater System.

If there are any questions, please call Mr. Robert Hess at 305-246-4112 or e-mail Robert.Hess@fpl.com.

Sincerely,

Brian Stamp  
Site Vice President – Turkey Point Nuclear Plant  
Florida Power & Light Company

Attachments: USNRC Forms 366 and 366A, current revision

cc: USNRC Senior Resident Inspector, Turkey Point Plant  
USNRC Regional Administrator, Region II



# **LICENSEE EVENT REPORT (LER)**

(See Page 3 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollections.Resource@nrc.gov](mailto:Infocollections.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk all: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov). The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. Facility Name Turkey Point Unit 4	2. Docket Number 05000	3. Page 1 OF 2
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4. Title  
Automatic Reactor Trip caused by Main Generator Lockout due to Exciter Fault

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
07	05	2020	2020	- 001 -	00	08	28	2020		05000
									Facility Name	Docket Number
										05000

9. Operating Mode 1	10. Power Level 100%
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## **11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)**

<input checked="" type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<b>10 CFR Part 73</b>
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	<b>10 CFR Part 21</b>	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<b>10 CFR Part 50</b>	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
<input type="checkbox"/> OTHER (Specify here, in abstract, or NRC 366A).				

## **12. Licensee Contact for this LER**

Licensee Contact David Stoia - Licensing Engineer	Phone Number (Include area code) (305) 246-6538
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## **13. Complete One Line for each Component Failure Described in this Report**

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS
B	EL	EXC	W120	Yes					

14. Supplemental Report Expected		15. Expected Submission Date		Month	Day	Year
<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)					

## **16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)**

On 7/5/2020 at 21:09 hours, while Unit 4 was operating in Mode 1 at 100% power, a Main Generator Lockout caused the Unit 4 Turbine to trip, automatically tripping the Reactor. The Main Generator Lockout was caused by a loss of two Voltage Regulator power supplies. All safety systems operated as required in response to the equipment failure. The Auxiliary Feedwater System automatically initiated as designed. This event is reportable pursuant to 10 CFR 50.73 (a)(2)(iv)(A), due to automatic actuation of the Reactor Protection System and Auxiliary Feedwater System.

Corrective actions included replacement of the Exciter PMG and rotating assembly and re-sealing the Exciter housing.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Turkey Point Unit 4	05000-251	YEAR 2020	SEQUENTIAL NUMBER 001	REV NO. 00

**NARRATIVE****EVENT DESCRIPTION**

On 7/5/2020 at 21:09 hours, during a heavy rainstorm while Unit 4 was operating in Mode 1 at 100% power, a lockout of the Main Generator [TB, GEN] occurred, causing a trip of the Unit 4 Turbine [TA, TRB]. This initiated a Reactor Protection System (RPS) [JC] actuation signal that caused the Reactor [AC, RCT] to automatically trip. The Main Generator lockout was caused by the loss of two power supplies to the Voltage Regulator. All safety systems functioned as designed during the event. The Auxiliary Feedwater (AFW) System [BA] automatically started to maintain Steam Generator [SG] levels within normal bands. Unit 4 was stabilized in Mode 3 following the reactor trip.

The RPS actuation was reported in accordance with 10 CFR 50.72 in Event Notification 54762. Automatic AFW actuation was inadvertently omitted from the initial event notification. The automatic RPS and AFW actuations are included in this Licensee Event Report pursuant to 10 CFR 50.73(a)(2)(iv)(A).

**CAUSE**

The event was initiated by an electrical fault of the Exciter Permanent Magnet Generator (PMG) [PMG], which caused both Voltage Regulator power supplies to fail. The resulting actuation of the Voltage Regulator lockout relay caused a lockout of the Unit 4 Main Generator, tripping the Turbine as designed. As a design input to RPS actuation logic, the turbine trip caused an automatic Reactor trip. Investigation found that the PMG fault was caused by a combination of the aged condition of the stator windings and exposure to moisture that was present due to a degraded weather seal on the exterior housing.

**SAFETY SIGNIFICANCE**

The safety significance of this event is very low because the unit responded as designed to the trip. There were no failures of safety-related equipment.

**CORRECTIVE ACTIONS**

The Exciter PMG and rotating assembly were replaced. The Exciter housing was re-sealed following reassembly. Additional actions will be prescribed by AR 2361794.

**ADDITIONAL INFORMATION**

EIIS Codes are shown in the format [IEEE system identifier, component function identifier, second component function identifier (if appropriate)].

**SIMILAR EVENTS**

A review of reportable events over the previous 15 years was performed. No similar events were identified, and no pattern of such events is evident.